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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/530,651	UTSUMI ET AL.	
	Examiner	Art Unit	
	Janelle N. Young	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-52* is/are pending in the application.

4a) Of the above claim(s) *3,4,14,15,25-41,46 and 47* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-13,16-24,42-45 and 48-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed May 29, 2008 have been fully considered but they are not persuasive.

Examiner disagrees with applicant's arguments.

Schwartz teaches distributing multiband wireless communications signals. Downlink RF signals in a plurality of downlink frequency bands are received and then combined into a combined downlink RF signal at the main unit. The combined downlink RF signal is subsequently split into multiple downlink RF-parts, which are converted to multiple downlink optical signals and optically transmitted to the remote units. At each remote unit, a delivered downlink optical signal is first converted back to a downlink RF-part which is subsequently separated into a plurality of downlink RF-groups by frequency band. Each downlink RF-group is individually conditioned (e.g., filtered and amplified). The individual-conditioned downlink RF-groups are then combined and transmitted to a dedicated downlink antenna. In addition, each remote unit is in RF-communication with at least one downlink antenna dedicated to handle the downlink RF signals transmitted from the remote unit. Likewise, each of the remote units is also in RF-communication with at least one uplink antenna dedicated to handle the uplink RF signals to be received by the remote unit.

Claim Rejections - 35 USC § 112

2. Claims 1 and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not disclose a "access points, connected to the main station via a wireless transmission path, for converting signals to be input from an outside of the local area to an inside of the local area to signals form for use in the local area"; it only discloses "one or more access relay apparatuses for converting a signal to be input from an outside of the local area to an inside of the local area to a signal form for use in the local area, and converting a signal to be output from the inside of the local area to the outside of the local area to a signal form for use in the outside of the local area"

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated

by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-2, 5-9, 12-13, 16-17, 19, 21-24, 42-45, and 51-52 are provisionally rejected on the ground of nonstatutory double patenting over claims 1-4, 7, 9, 14-20, 24-25, and 28 of copending Application No. 10/524026.

The subject matter claimed in the instant application (claim 1) is fully disclosed in the referenced copending application (claim 1) and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: an access point serving as a host device for the master station; which reads on claimed main station,

and converts an Ethernet signal received from the Ethernet network; which reads on claimed switch, into a wireless LAN signal and sends out the wireless LAN signal to the master station. In addition, the access point converts a wireless LAN signal outputted from the master station into an Ethernet signal and sends out the Ethernet signal to the Ethernet network. The master station converts a wireless LAN signal outputted from the access point into an optical signal and sends out the optical signal to the optical multiplexing/demultiplexing section. In addition, the master station converts an optical signal outputted from the optical multiplexing/demultiplexing section into a wireless LAN signal and sends out the wireless LAN signal to the access point. The optical multiplexing/demultiplexing section allows an optical signal outputted from the master station to be demultiplexed and sends out the demultiplexed optical signals to each of the slave stations; which read on claimed sub-stations. In addition, the optical multiplexing/demultiplexing section sends out to the master station 13 an optical signal outputted from the slave stations 15a to 15c. The slave stations all have the same configuration, and each convert an optical signal outputted from the optical multiplexing/demultiplexing section into an electrical signal and transmit a radio wave corresponding to the electrical signal from their respective antennas. In addition, the slave stations each convert a radio wave received by their respective antennas into an optical signal and sends out the optical signal to the optical multiplexing/demultiplexing section. The terminals each receive, by their respective antennas, a radio wave transmitted from their respective slave stations and demodulates the radio wave, thereby obtaining an electrical signal. In addition, the terminals each modulate a

predetermined electrical signal and transmit a radio wave corresponding to the electrical signal to their respective slave stations 15a to 15c from their respective antennas.

This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2, 5-13,16-23, 42, and 48-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz et al. (US Patent 6,801,767) and further in view of Aburakawa et al. (US Pub 2003/0007214).

As for claim 1, Schwartz et al. teaches a system for enabling a wireless communication terminals present in a LAN (local area data) networks) which reads on claimed local area, to communication with a WLAN (wide area data); which reads on claimed network outside the local area (Col. 9, Line 64-Col.10, line 7 of Schwartz et al.), the system comprising:

a plurality of expansion units; which reads on claimed sub-stations, for forming respective wireless communication areas individually in the local area, and performing wireless communication with the remote unit; which reads on

claimed wireless communication terminals, in the respective corresponding wireless communication areas (Abstract; Col. 2, lines 25-65; Col. 4, lines 10-65; Col. 5, lines 10-24; Col. 9, lines 35-50; and Col. 12, lines 5-30 of Schwartz et al.);

a main unit; which reads on claimed a main station, connected to each of the plurality of sub-stations via optical fiber transmission path (Fig. 2a; Abstract; Col. 3, lines 35-40; and Col. 9, lines 35-40 of Schwartz et al.); and

a plurality of wireless communications networks 120, including (but not limited to) iDEN, cellular, PCS, paging, and WLAN base-stations (BTS); which reads on claimed access ~~relay apparatuses~~ points, connected to the main station via a wireless transmission path, for converting signals to be input from an outside of the local area to an inside of the local area to signals form for use in the local area, and converting signals to be output from the inside of the local area to the outside of the local area to signals form for use in the outside of the local area (Fig. 1:**120**; Col. 3, line 40-Col. 4, line 9Col. 4, lines 23-57; Col. 5, lines 11-46; and Col. 9, lines 21-63 of Schwartz et al.); and

~~a main unit; which reads on claimed main station, provided between the sub-stations and the access relay apparatuses points,~~ wherein the main station comprises:

a managing section operable determine one of the plurality of access ~~relay apparatuses~~ points to which a first one of wireless communication terminals is accessible converted in each of the access ~~relay apparatuses~~ points; and a selecting section operable to select and

output one of the signals to be input from the outside of the local area, whose form is converted in one of the plurality of access ~~relay apparatuses~~ points determined by the managing section, and which is input to the local area, to the first wireless communication terminal via a corresponding to one of the sub-station (Fig. 2a & 2d; Abstract; Col. 10, Line 8-Col. 11, line 6; and Col. 12, lines 31-39 of Schwartz et al.).

In addition, Aburakawa et al. teaches a network system of radio base stations comprising base stations provided in a plurality of cells and a control station controlling the base stations, in which the base stations and the control station are connected by optical fibers using a wavelength multiplexing transmission (Abstract of Aburakawa et al.).

It would have been obvious to one of ordinary skill of the art at the time the invention was made to incorporate the wireless base station network system, control station, base station switching method, signal processing method, and handover control method, as taught by Aburakawa et al., in the method and system for distributing multiband wireless communications signals of Schwartz et al., because Schwartz et al. already teaches a wavelength-division-multiplexing (WDM) filter may be used to transmit a pair of downlink and uplink optical signals along a single optical fiber, thereby reducing the number of optical fibers to be deployed in the system (Col. 6, line 55-Col. 7, line 50 of Schwartz et al.).

The incorporation of radio communication system with wireless communications system would provide a modular, efficient, flexible, and economical way of transporting

and distributing wireless communication signals in multiple (adjacent, intertwined, or otherwise) frequency bands (Col. 2, lines 25-39 and Col. 53-56 of Schwartz et al.).

As for claim 2, Schwartz et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein each of the plurality of access ~~relay apparatuses~~ points uses a frequency different from one second, the selecting section further comprises:

a plurality of splitting sections corresponding to the respective access ~~relay apparatuses~~ points (Abstract; Col. 4, lines 23-39; Col. 7, lines 5-8 & 32-35; and Col. 14, line 49-Col. 15, line 56 of Schwartz et al.);

a plurality of switching sections corresponding to the respective sub-stations, (Col. 5, Line 11-Col. 7, line 51; Col. 12, lines 4- 30; and Col. 15, Line 57-Col. 16, line 50 of Schwartz et al.) and;

a plurality of multiplexing sections corresponding to the respective switching sections (Col. 6, Line 55-Col. 7, line 50 and Col. 17, line 60-Col. 18, line 30 of Schwartz et al.);

wherein each of the splitting sections splits and outputs a signal out to the plurality of signals to be input to the local area whose form has been converted in a corresponding one of the access ~~relay apparatuses~~ points, to all of the switching sections (Col. 4, lines 22-57; Col. 5, lines 11-46; Col. 6, line 31-Col. 7, line 50; and Col. 14, line 49-Co.l. 15, line 56 of Schwartz et al.);

wherein each of the switching sections is switched to determine which of the signals output from the splitting sections is output to the first wireless communication terminal the corresponding sub-station based on the communication routes managed by the managing section; and each of the multiplexing sections frequency-multiplexes signals output from the corresponding switching section to create a multiplexed signal to be input to the local area and outputs the multiplexed signal to the corresponding sub-station (Col. 4, lines 23-39; Col. 6, lines 65-67; Col. 7, lines 5-8 & 32-35 of Schwartz et al.).

As for claim 5, Schwartz et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, further comprising a network switch provided between the access ~~relay apparatuses~~ points and the network outside the local area, wherein

the network switch is operable to manage a state of connection between each of the access ~~relay apparatuses~~ points and the wireless communication terminals present in the local area, to specify the wireless communication terminals present in the local area with reference to signals input to the network switch, and based on the connection state, to output the signal input to the network switch to the access ~~relay apparatuses~~ points connected to the first wireless communication terminals (Col. 4, lines 23-39; Col. 6, lines 65-67; Col. 7, lines 5-8 & 32-35; and Col. 9, lines 21-Col. 10, line 7 of Schwartz et al.).

As for claim 6, Schwartz et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system:

wherein the first wireless communication terminals present in the local area transmits signals to be transmitted to second wireless communication terminals present in the local area, to the sub-station of the communication area to which the first wireless communication terminals belongs (Fig. 1; Col. 5, lines 10-24; Col. 9, lines 30-50; and Col. 12, lines 5-30 of Schwartz et al.)

wherein the signal to be transmitted to the second wireless communication terminals is input via the sub-station of the communication area to which the first wireless communication terminal belongs and the main station to the access ~~relay apparatuses~~ points, is converted to signals for use in the outside of the local area in the access ~~relay apparatuses~~ points connected to the first wireless terminal, and is output to the network switch; and wherein the network switch specifies the second wireless communication terminals present in the local area with reference to the signal whose form has been converted in the access ~~relay apparatuses~~ points, and based on the connection state, outputs the signal input to the network switch from the access ~~relay apparatuses~~ point to the access ~~relay apparatuses~~ points connected to the second wireless communication terminals (Fig. 1; Col. 4, lines 23-36; Col. 5, lines 10-24; Col. 9, lines 30-50; and Col. 12, lines 5-30 of Schwartz et al.).

As for claim 7, Schwatrz et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein the sub-stations receives the signal to be output from the inside of the local area to the outside of the local area, the signal being transmitted from the wireless communication terminals, and output the received signals to the main station,

the main station outputs the signal to be output from the inside of the local area to the outside of the local area, the signal being output from the sub-station, to the access ~~relay apparatuses~~ points, the access ~~relay apparatuses~~ points converts the signal to be output from the inside of the local area to the outside of the local area, the signal being output from the main station, to the signal form for use in the outside of the local area, and outputs the converted signal to the outside of the local area (Fig. 2a & 2d; Abstract; Col. 3, lines 35-40; and Col. 9, lines 35-40t; Col. 10, Line 8-Col. 11, line 6; and Col. 12, lines 31-39 of Schwartz et al.).

As for claim 8, Schwartz et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein the main station further comprises:

a plurality of main station signal receiving means corresponding to the respective sub-stations, for receiving the signal to be output from the inside of the local area to the outside of the local area, the signal being output from each of the sub-station; and a main station combining section operable to combine the

signals to be output from the inside of the local area to the outside of the local area, the signals being received by the plurality of the main station signal receiving sections, and output the combined signal to the access ~~relay apparatuses~~ points (Fig. 2a & 2d; Abstract; Col. 3, lines 35-40; and Col. 9, lines 35-40t; Col. 10, Line 8-Col. 11, line 6; and Col. 12, lines 31-39 in respect to Col. 20, line 15-Col. 21, line 59 of Schwartz et al.).

As for claim 9, Aburakawa et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein the access ~~relay apparatuses~~ points further comprises:

an intensity detecting section operable to detect an intensity of signals transmitted from the main station; and a request section operable to request the main station to switch one signal to be transmitted to the access ~~relay apparatuses~~ points to second signal when the intensity of the signal transmitted from the main station, the intensity being detected by the intensity detecting section, is lower than a predetermined value (Abstract; Col. 2, Line 0024; Col. 4, Line 0075; Col. 7, Line 0132; Col. 8, Line 0146-0152; and Col. 9, Line 0166-017),

wherein when the request from the request section is present and the main station receives signals having the same contents to be transmitted to the access ~~relay apparatuses~~ points from two or more of the sub-stations, the main station outputs the signal the second signal to access ~~relay apparatuses~~ point, instead of the first (Col. 1, Line 0015 & 0019; Col. 2, Line 0027; Col. 3, Line 0055

& 0057; Col. 4, Line 0065; Col. 5, Line 0088-0091 & 0097; and Col. 10, Line 0190 of Aburakawa et al.);

wherein the first signal is transmitted to the main station from a first one of the plurality of sub-stations, and the second signal is transmitted to the main station from the second on of the plurality of sub-stations (Abstract; Col. 2, Line 0024-0025; Col. 3, Line 0051-0055; and Col. 10, Line 0187-0188 of Aburakawa et al.).

As for claim 10, Aburakawa et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein each of the sub-stations further comprises a crosstalk canceling section operable to create signals having the same intensity as that of crosstalk occurring in the signal to be output from the inside of the local area to the outside of the local area due to an influence of the signal to be input to the local area, based on the signal to be input to the local area, and invert the signal having the intensity and adding the inverted signal to the crosstalk (Col. 7, Line 0131-Col. 8, Line 0152 and Col. 9, Line 0165-0172 of Aburakawa et al.).

As for claim 11, Aburakawa et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein the crosstalk canceling section comprises:

a first coupler section for splitting a portion of the signal to be input to the local area; and a second coupler section for combining the portion of the signal to be input to the local area which has been split by the first coupler section, with

the signal to be output from the inside of the local area to the outside of the local area (Abstract; Col. 2, Line 0024-0025; Col. 3, Line 0053-0054 & 0063; Col. 4, Line 0081; Col. 7, Line 0125, 0137, & 0141; Col. 8, Line 0160-Col. 9, Line 0161; and Col. 10, Line 0188 of Aburakawa et al.),

the first coupler section changes a phase of signals to be output to the second coupler section by 90^{o} when splitting the signal to be input to the local area, and the second coupler section changes a phase of the signal to be input to the local area which has been output from the first coupler section, by 90^{o}, when combining the two signals (Abstract; Col. 1, Line 0009; Col. 3, Line 0065-0068; and Col. 4, Line 0081-0082 of Aburakawa et al.).

As for claim 12, Aburakawa et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein, in each of the sub-station, signals transmitting/receiving system; which is interpreted as an antenna, for outputting the signal to be output from the inside of the local area to the outside of the local area, the signal being output from the wireless communication terminals, to the main station, and signals transmitting/receiving system for transmitting the signal to be input to the local area, the signal being output from the main station, to the wireless communication terminals, wherein each of the signal transmitting/receiving systems are accommodated in separate housings (Col. 1, Line 0003-0005; Col. 2, Line 0027; Col. 7, Line 0134; and Col. 10, Line 0187 of Aburakawa et al.).

As for claim 13, Schwartz et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein the main station and each of the sub-stations are connected via an optical transmission line,

the main station further comprises an optical signal conversion section operable to convert the signal selected by the selecting section to an optical signal (Fig. 2a & 2d; Abstract; Col. 3, lines 35-40; Col. 9, lines 35-40; Col. 10, Line 8-Col. 11, line 6; and Col. 12, lines 31-39 of Schwartz et al.); and

each of the sub-stations converts the optical signal output from the main station to an electrical signal in a form for use in the local area, and transmits the electrical signal in the form of a wireless radio wave to the wireless communication terminals in the corresponding wireless communication area (Col. 2, lines 60-65; Col. 4, lines 55-65; Col. 5, lines 10-24; Col. 9, lines 35-50; and Col. 12, lines 5-30 of Schwartz et al.).

As for claim 16, Schwartz et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein the sub-station further comprises a sub-station frequency-converting section operable to convert a frequency of the converted electrical signal in the form for use in the local area from the intermediate frequency to a frequency which is when the access ~~relay apparatuses~~ points has output the electrical signals,

the signal frequency-converted by the sub-station frequency-converting section is transmitted in the form of a wireless radio wave to the wireless communication terminals in the corresponding wireless communication area (Col. 2, lines 60-65; Col. 4, lines 55-65; Col. 5, lines 10-24; Col. 9, lines 35-50; and Col. 12, lines 5-30 of Schwartz et al.);

the main station further comprises a main station frequency-converting section operable to convert a frequency of the signal to be input to the local area, a form of the signal having been converted by each of the access ~~relay apparatuses~~ points, to an intermediate frequency(Fig. 2a & 2d; Abstract; Col. 3, lines 35-40; Col. 9, lines 35-40; Col. 10, Line 8-Col. 11, line 6; and Col. 12, lines 31-39 of Schwartz et al.),

the selecting section selects the signal to be input to the local area whose form has been converted by each of the access ~~relay apparatuses~~ points and which has been frequency-converted by the main station frequency-converting section ((Fig. 2a & 2d; Abstract; Col. 10, Line 8-Col. 11, line 6; and Col. 12, lines 31-39 of Schwartz et al.).

As for claim 17, Schwartz et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein each of the access ~~relay apparatuses~~ points outputs the converted signal to be input to the local area as signals having a first intermediate frequency to the main station,

the main station further comprises a main station frequency-converting section operable to convert a frequency of the signal to be input to the local area, the signal being output from each of the access ~~relay apparatuses~~ points, to a second intermediate frequency (Fig. 2a & 2d; Abstract; Col. 3, lines 35-40; Col. 9, lines 35-40; Col. 10, Line 8-Col. 11, line 6; and Col. 12, lines 31-39 of Schwartz et al.), and

the selecting section selects the signal to be input to the local area whose having been converted by each of the access ~~relay apparatuses~~ points and which has been frequency-converted by the main station frequency-converting section (Fig. 2a & 2d; Abstract; Col. 10, Line 8-Col. 11, line 6; and Col. 12, lines 31-39 of Schwartz et al.).

As for claim 18, Aburakawa et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein the optical transmission lines connecting the respective sub-stations and the main station have lengths substantially equal to one second (Col. 1, Line 0003-0004; Col. 5, Line 0091-0092 & 0100; Col. 6, Line 0109; Col. 7, Line 0127-0128; and Col. 9, Line 0173-0179 of Aburakawa et al.).

As for claim 19, Schwartz et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein

the main station and each of the sub-stations are connected via an optical transmission line, the main station further comprises an optical signal conversion

section operable to convert the signal to be input to the local area, a form of the signal having been converted by each of the access ~~relay apparatuses~~ points, to an optical signal (Fig. 2a; Abstract; Col. 3, lines 35-40; and Col. 9, lines 35-40 of Schwartz et al.), and

the selecting section selects and outputs the optical signal converted by the optical signal conversion section to the corresponding sub-stations (Fig. 2a & 2d; Abstract; Col. 10, Line 8-Col. 11, line 6; and Col. 12, lines 31-39 of Schwartz et al.).

As for claim 20, Schwartz et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein the main station further comprises a plurality of signal receiving sections corresponding to the respective sub-stations, for receiving all signals which are output from the respective access ~~relay apparatuses~~ points, the selecting section comprises:

a plurality of splitting sections corresponding to the respective sub-stations (Col. 4, lines 22-57; Col. 5, lines 11-46; Col. 6, line 31-Col. 7, line 50; and Col. 14, line 49-Co.l. 15, line 56 of Schwartz et al.); and

a plurality of selecting/outputting sections provided between the respective sub-stations and the respective splitting sections, the splitting sections split all of the signals to be input to the local area which have been output from the respective access ~~relay apparatuses~~ points and have been received by the respective signal receiving sections, into signals to be input to the local area for

the respective access ~~relay apparatuses~~ points, and each of the selecting/outputting sections outputs the signal to be input to the local area which is to be output to the corresponding sub-station, among the signals to be input to the local area which have been split by the corresponding splitting sections, to the wireless communication terminal via the corresponding sub-station based on the communication routes managed by the managing section (Fig. 2a & 2d; Abstract; Col. 10, Line 8-Col. 11, line 6; and Col. 12, lines 31-39 of Schwartz et al.).

As for claim 21, Aburakawa et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein the selecting section comprises:

a plurality of signal receiving sections corresponding to the respective sub-stations, and each of the signal receiving sections receives only the signal to be input to the local area which is to be transmitted to the corresponding sub-station, among the signals to be input the local area which have been output from the respective access ~~relay apparatuses~~ points, based on the communication routes managed by the managing section (Col. 8, Line 0147-0151 and Col. 8- 9, Line 0159-0166 of Aburakawa et al.), and

a plurality of selecting/outputting sections provided between the respective sub-stations and the respective signal receiving sections, and the selecting/outputting sections transmit the signal to be input to the local area which has been received by the respective signal receiving sections, to the

respective corresponding sub-station (Col. 10, Line 0186-0190 of Aburakawa et al.).

As for claim 22, Aburakawa et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein the wireless communication terminals present in the local area comprises a communication start request section operable to request for starting communication via the desired access ~~relay apparatuses~~ points to the sub-station in the communication area to which the wireless communication terminals belongs, the communication start request reaches via the sub-station to the main station, the main station comprises:

a communication request signal receiving section operable to receive the communication start request transmitted from the communication start request section; and a communication starting section operable to start communication via the access ~~relay apparatuses~~ points desired by the sub-station based on the communication start request received by the communication request signal receiving section (Col. 1, Line 0015; Col. 2, Line 0027; Col. 3, Line 0055; Col. 4, Line 0065; and Col. 5, Line 0088-0091 & 0097 of Aburakawa et al.).

As for claim 23, Aburakawa et al. teaches a system for enabling a wireless communication terminals present in a local area to communication with a network outside the local area, the system, wherein the selecting section does not select or output the signal output by the access ~~relay apparatuses~~ points to the sub-station when the sub-station has not transmitted signals to the access ~~relay apparatuses~~ points for a

predetermined period of time or more (Col. 2, Line 0024; Col. 4, Line 0075; Col. 7, Line 0131; and Col. 8, Line 0148-0151 of Aburakawa et al.).

Regarding claim 42, see explanation as set forth regarding claims 1 & 8 (system claim) because the claimed main station for sub-station for enabling a wireless communication terminals present in a local area to communication with a network outside the local area would perform the system steps.

Regarding claim 48, see explanation as set forth regarding claim 10 (system claim) because the claimed a sub-station for use in a wireless communication system would perform the system steps.

Regarding claim 49, see explanation as set forth regarding claim 11 (system claim) because the claimed a sub-station for use in a wireless communication system would perform the system steps.

Regarding claim 50, see explanation as set forth regarding claim 12 (system claim) because the claimed a sub-station for use in a wireless communication system would perform the system steps.

Regarding claim 51, see explanation as set forth regarding claim 1 (system claim) because the claimed method for enabling a wireless communication terminals present in a local area to communication with a network outside the local area would perform the system steps.

Regarding claim 52, see explanation as set forth regarding claim 2 (system claim) because the claimed method for enabling a wireless communication terminals

present in a local area to communication with a network outside the local area would perform the system steps.

5. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz et al. (US Patent 6,801,767) and further in view of Aburakawa et al. (US Pub 2003/0007214).

As for claim 24, Schwartz et al. teaches a system for enabling a wireless communication terminals present in a LAN (local area data) networks) which reads on claimed local area, to communication with a WLAN (wide area data); which reads on claimed network outside the local area (Col. 9, Line 64-Col.10, line 7 of Schwartz et al.), the system comprising:

a plurality of expansion units; which reads on claimed sub-stations, for forming respective wireless communication areas individually in the local area, and performing wireless communication with a wireless communication terminals in the respective corresponding wireless communication areas (Col. 2, lines 60-65; Col. 4, lines 55-65; Col. 5, lines 10-24; Col. 9, lines 35-50; and Col. 12, lines 5-30 of Schwartz et al.);

a plurality of wireless communications networks 120, including (but not limited to) iDEN, cellular, PCS, paging, and WLAN base-stations (BTS); which reads on claimed access ~~relay apparatuses~~ points, for converting signals to be input from an outside of the local area to an inside of the local area to signals form for use in the local area, and converting signals to be output from the inside

of the local area to the outside of the local area to signals form for use in the outside of the local area (Fig. 1:**120**; Col. 3, line 40-Col. 4, line 9Col. 4, lines 23-57; Col. 5, lines 11-46; and Col. 9, lines 21-63 of Schwartz et al.); and

a main unit; which reads on claimed main station, provided between the sub-stations and the access ~~relay apparatuses~~ points(Fig. 2a; Abstract; Col. 3, lines 35-40; and Col. 9, lines 35-40 of Schwartz et al.), wherein the main station comprises:

a multiplexing section operable to frequency-multiplex the signal to be input to the local area, the signal to be output from the access ~~relay apparatuses~~ points (Col. 6, Line 55-Col. 7, line 50 and Col. 17, line 60-Col. 18, line 30 of Schwartz et al.); and

a selecting section operable to select and output the signal to be input to the local area, which has been multiplexed by the multiplexing section, to all of the sub-stations (Fig. 2a & 2d; Abstract; Col. 10, Line 8-Col. 11, line 6; and Col. 12, lines 31-39 of Schwartz et al.).

However, Aburakawa et al. teaches a network system of radio base stations comprising base stations provided in a plurality of cells and a control station controlling the base stations, in which the base stations and the control station are connected by optical fibers using a wavelength multiplexing transmission (Abstract of Aburakawa et al.).

It would have been obvious to one of ordinary skill of the art at the time the invention was made to incorporate the wireless base station network system, control

station, base station switching method, signal processing method, and handover control method, as taught by Aburakawa et al., in the method and system for distributing multiband wireless communications signals of Schwartz et al., because Schwartz et al. already teaches a wavelength-division-multiplexing (WDM) filter may be used to transmit a pair of downlink and uplink optical signals along a single optical fiber, thereby reducing the number of optical fibers to be deployed in the system (Col. 6, line 55-Col. 7, line 50 of Schwartz et al.).

The incorporation of radio communication system with wireless communications system would provide a modular, efficient, flexible, and economical way of transporting and distributing wireless communication signals in multiple (adjacent, intertwined, or otherwise) frequency bands (Col. 2, lines 25-39 and Col. 53-56 of Schwartz et al.).

6. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz et al. (US Patent 6,801,767) and further in view of Aburakawa et al. (US Pub 2003/0007214).

As for claim 43, Schwartz et al. teaches a main station, provided between a plurality of sub-stations for forming respective wireless communication areas in a LAN (local area data) networks) which reads on claimed local area, and performing wireless communication with a wireless communication terminals in the respective wireless communication areas, and a plurality of access ~~relay apparatuses~~ points for outputting signals to be input from an WLAN (wide area data); which reads on claimed network

outside the local area, to an inside of the local area (Col. 9, Line 64-Col.10, line 7 of Schwartz et al.), the main station comprising:

signals receiving section operable to receive the signal to be input to the local area, which has been received by the access ~~relay apparatuses~~ points (Fig. 2a & 2d; Abstract; Col. 3, lines 35-40; and Col. 9, lines 35-40t; Col. 10, Line 8-Col. 11, line 6; and Col. 12, lines 31-39 of Schwartz et al.);

a multiplexing section operable to frequency-multiplex the signal to be input to the local area the signal being received by the signal receiving section; and a selecting section operable to select and output the signal to be input to the local area which has been multiplexed by the multiplexing section, to all of the sub-stations (Col. 6, Line 55-Col. 7, line 50 and Col. 17, line 60-Col. 18, line 30 of Schwartz et al.).

However, Aburakawa et al. teaches a network system of radio base stations comprising base stations provided in a plurality of cells and a control station controlling the base stations, in which the base stations and the control station are connected by optical fibers using a wavelength multiplexing transmission (Abstract of Aburakawa et al.).

It would have been obvious to one of ordinary skill of the art at the time the invention was made to incorporate the wireless base station network system, control station, base station switching method, signal processing method, and handover control method, as taught by Aburakawa et al., in the method and system for distributing multiband wireless communications signals of Schwartz et al., because Schwartz et al.

already teaches a wavelength-division-multiplexing (WDM) filter may be used to transmit a pair of downlink and uplink optical signals along a single optical fiber, thereby reducing the number of optical fibers to be deployed in the system (Col. 6, line 55-Col. 7, line 50 of Schwartz et al.).

The incorporation of radio communication system with wireless communications system would provide a modular, efficient, flexible, and economical way of transporting and distributing wireless communication signals in multiple (adjacent, intertwined, or otherwise) frequency bands (Col. 2, lines 25-39 and Col. 53-56 of Schwartz et al.).

7. Claims 44-45, are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz et al. (US Patent 6,801,767) and further in view of Aburakawa et al. (US Pub 2003/0007214).

As for claim 44, Schwartz et al. teaches a sub-station for use in a wireless communication system, wherein the sub-station forms a wireless communication area in a LAN (local area data) networks) which reads on claimed local area,, and communicates with a wireless communication terminals present in the wireless communication area formed by the sub-station, in the wireless communication system, signals to be input from an WLAN (wide area data); which reads on claimed network outside the local area to an inside of the local area is converted to signals form for use in the local area, and is selected and output to the corresponding sub-station(Col. 9, Line 64-Col.10, line 7 of Schwartz et al.), the sub-station comprising:

signals receiving section operable to receive a corresponding signal among the selected and output signals, a radio wave signal transmitting section operable to transmit the signal received by the signal receiving section to the corresponding wireless communication terminals present in the wireless communication area in the form of a wireless radio wave (Fig. 1; Col. 4, lines 23-36; Col. 5, lines 10-24; Col. 9, lines 30-50; and Col. 12, lines 5-30 of Schwartz et al.).

However, Aburakawa et al. teaches a network system of radio base stations comprising base stations provided in a plurality of cells and a control station controlling the base stations, in which the base stations and the control station are connected by optical fibers using a wavelength multiplexing transmission (Abstract of Aburakawa et al.).

It would have been obvious to one of ordinary skill of the art at the time the invention was made to incorporate the wireless base station network system, control station, base station switching method, signal processing method, and handover control method, as taught by Aburakawa et al., in the method and system for distributing multiband wireless communications signals of Schwartz et al., because Schwartz et al. already teaches a wavelength-division-multiplexing (WDM) filter may be used to transmit a pair of downlink and uplink optical signals along a single optical fiber, thereby reducing the number of optical fibers to be deployed in the system (Col. 6, line 55-Col. 7, line 50 of Schwartz et al.).

The incorporation of radio communication system with wireless communications system would provide a modular, efficient, flexible, and economical way of transporting and distributing wireless communication signals in multiple (adjacent, intertwined, or otherwise) frequency bands (Col. 2, lines 25-39 and Col. 53-56 of Schwartz et al.).

As for claim 45, Aburakawa et al. teaches a sub-station for use in a wireless communication system, wherein the signal to be input from the outside of the local area to the inside of the local area is converted to signals in an optical signal form, and the optical signal is selected and output, the signal receiving section receives the signal converted to the optical signal form, the sub-station further comprises an electrical conversion section operable to convert the signal received by the signal receiving section to an electrical signal form, and the radio wave signal transmitting section transmits the signal converted by the electrical conversion section to the wireless communication terminals in the form of a wireless radio wave, the wireless communication terminals transmits signals to output from the inside of the local area to the outside of the local area in the form of a wireless radio wave, the sub-station further comprises:

a radio wave signal receiving section operable to receive the signal transmitted by the wireless communication terminals (Col. 1, Line 0011; Col. 3, Line 0053; Col. 4, Line 0075-0077; and Col. 5, Line 0087-0090 of Aburakawa et al.);

signals transmitting section operable to transmit the signal received by the radio wave signal receiving section to an outside of the wireless communication

area formed by the sub-station (Abstract; Col. 1, Line 0001 & 0003-0004; Col. 2, Line 0027; and Col. 10, Line 0187-0188 of Aburakawa et al.); and

an optical conversion section operable to convert the signal received by the radio wave signal receiving section to an optical signal form, the signal transmitting section transmits the optical signal converted by the optical conversion section to the outside of the wireless communication area formed by the sub-station (Abstract; Col. 1, Line 0001 & 0003-0004; Col. 2, Line 0024 & 0027; and Col. 3, Line 0053-0054 of Aburakawa et al.).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

O'Neill (US Patent 5559866) discloses method of providing communication services in a cellular communication system which consists of a plurality of service coverage areas having a plurality of shared frequency microcells. Each microcell has an omnidirectional, remote antenna interconnected with a base site. The method consists of receiving a request, at the base site, to provide communication access to a communication unit. A supervisory audio tone is simulcast through each omnidirectional, remote antenna of the plurality of shared frequency microcells. A signal quality factor of a looped-back supervisory audio tone received from the communication unit at each omnidirectional, remote antenna is then measured. A communication link between the communication unit and base site is then established through a selected

antenna of said plurality of omnidirectional, remote antennas. The antenna is selected based upon the signal quality factor of the looped-back supervisory audio tone.

Aburakawa et al. (US Pub 2002/0094842) discloses a signal sent from a wireless base station, a wireless modem converts the signal to a signal of a unified transmission form. The switch switches the signal to one of wireless transceivers and the optical transceiver. The wireless transceiver sends the signal to a control station or a wireless base station via a wireless circuit. The optical transceiver converts the signal into an optical signal and sends the optical signal to a wireless base station via an optical fiber circuit.

Anton et al. (US Pub 2003/0202486)discloses a system which provides virtual Ethernet and virtual Wireless Ethernet (e.g. 802.11b) interfaces for client using a single host device. Providing virtual Ethernet interfaces for a client requires one physical Ethernet card/interface. Providing virtual Wireless Ethernet interfaces for a client requires two physical wireless Ethernet cards/interfaces. Applications can use these virtual interfaces as if they are real interfaces using socket interfaces.

Bauman (US Pub 2004/0203339) discloses a distributed antenna system is configured in a daisy-chain fashion along a single path. The summation of the signals received by each antenna port of the system is distributed along the path. The signal gain for the system is controlled by distributed attenuation and distributed gain control by using attenuators at port inputs, port outputs, or both.

Imajo et al. (US Patent 6807374) discloses an optical transmission system for mobile communication compensates for disadvantages of the star type and the

multicipital type systems. In the system, a radio modem for per forming modulation/demodulation between a circuit frequency electrical signal and a radio frequency electrical signal is connected to a network through an electrical signal transmission cable, a central station for performing conversion between a radio frequency electrical signal and an optical signal is connected to a relay-transmitting station for distributing and coupling optical signals through downward and upward optical fiber cables, a plurality of terminal stations for performing radio communication with a mobile communication unit and conversion between an electrical signal and an optical signal are connected to the relay-transmitting station through downward and upward optical fiber cables, the central station is connected with the relay-transmitting station by a small number of optical fiber cables, and the relay-transmitting station is connected with a plurality of terminal stations by optical fiber cables so that the terminal stations are independent from each other.

Niiho et al. (US Pub 20050266854) discloses a wireless access system and method are provided by which the wireless communications area covered by a single access point is increased while maintaining the maintainability of the access point, minimizing an increase in system cost, and avoiding the hidden terminal problem. An access point (12) and terminals (16a to 16c) are connected via a master station (13), an optical multiplexing/demultiplexing section (14), and slave stations (15a to 15c). A downstream signal to the terminals (16a to 16c) from the access point (12) is transmitted such that the master station (13) outputs the downstream signal to each of the slave stations (15a to 15c) in a distributed manner through the optical

multiplexing/demultiplexing section (14). An upstream signal to the access point (12) from any one of the terminals (for example, 16a) is transmitted to the master station (13) through a slave station (for example, 15a) and the optical multiplexing/demultiplexing section (14), and also sent to all other slave stations (for example, 15b and 15c) through the master station (13) or the optical multiplexing/demultiplexing section (14).

Chen et al. (US Patent 7177294) discloses a wireless communication networks utilize various communication protocols to exchange data between wireless network devices. Overlapping communication frequencies between data exchange protocols present a collision problem when data transmissions interfere with one another during wireless transit. A device for moderating transmission traffic in a wireless network where overlapping communication frequencies coexist is described to reduce or avoid interference caused by signal collisions.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle N. Young whose telephone number is (571) 272-2836. The examiner can normally be reached on Monday through Friday: 10:00 am through 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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